

DANTYA FEROX, A NEW SPECIES OF
MYODOCOPID OSTRACODE FROM NIUE,
CENTRAL SOUTH PACIFIC
(CRUSTACEA: OSTRACODA: SARSIELLIDAE)

Louis S. Kornicker and Thomas M. Iliffe

Abstract.—*Dantya ferox*, a new species of myodocopid ostracode in the subfamily Dantyninae from a marine cave in the island of Niue, central South Pacific, is described and illustrated. The genus had not been reported previously from the Pacific. A key is presented to the species of *Dantya*.

The genus *Dantya*, proposed in 1978, is now known from five species, but specimens are sparse, with only one species known from more than two specimens (*Dantya benthedi*—50 specimens, *D. magnifica*—2 specimens, and *D. fossula*, *D. piercei*, and *D. ferox*—1 specimen for each species). The adult male is not known for any of the species, but this is not unusual in the Sarsiellidae, because the ratio of females to males is high; as a consequence systematic discrimination in the family is based mostly on female characters.

The island of Niue is a raised limestone atoll encompassing 259 square km located 386 km east of Vava'u, Tonga, in the central South Pacific Ocean (Fig. 1). A 20 m sea cliff at the inner edge of a narrow reef platform surrounds the island. Inland, a second terrace rises to a central plateau about 60 m above sea level. Faulting during uplift has produced many deep chasms which run parallel to the coastline. Well developed karst relief is present around the margins of the island.

An adult female of a new species, *Dantya ferox*, described herein, was collected inside a cave with direct connection to the sea along the west side of the island. The species is not considered to be a troglobite because of the open connection of the cave to the sea; this conclusion is supported by the species having normal eyes. This is the first report

of the genus in the Pacific Ocean; previously, the genus was known only from the Caribbean Sea (one species) and Indian Ocean (three species).

Sarsiellidae Brady & Norman, 1896

Composition.—The Sarsiellidae include two subfamilies: Sarsiellinae Brady & Norman, 1886, and Dantyninae Kornicker & Cohen, 1978.

Dantyninae Kornicker & Cohen, 1978

Composition.—The Dantyninae include two genera: *Dantya* Kornicker & Cohen, 1978, and *Nealella* Kornicker & Caraion, 1980.

Dantya Kornicker & Cohen, 1978

Type species.—*Dantya magnifica* Kornicker & Cohen, 1978.

Composition.—The new species described herein increases the number of known species of the genus to five: *D. magnifica* Kornicker & Cohen, 1978, *D. benthedi* Kornicker, 1983, *D. piercei* Kornicker, 1983, *D. fossula* Kornicker, 1983, and *D. ferox*, new species.

Distribution.—*D. magnifica* is known only from a coral reef fringing Carrie Bow Cay, Belize, Caribbean Sea, where it was collected at a depth of 20 m. *D. fossula* and *D.*

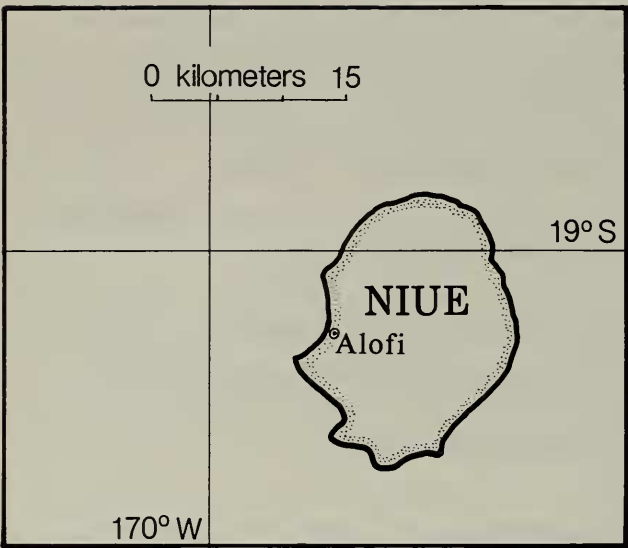


Fig. 1. Map showing location of the island of Niue, central South Pacific Ocean. Cave from which *Dantya ferox* was collected is near Alofi.

benthedi were collected in the Mozambique Channel, Indian Ocean, at depths of 24 m and 250–550 m, respectively. *D. piercei* was also collected in the Indian Ocean, on the continental shelf east of the Somali Republic at a depth of 60–70 m. The new species, *D. ferox*, was collected at a depth of 2 m in a sea cave on the island of Niue, central South Pacific Ocean.

Key to the Species of *Dantya*
(females)

- 1. Ventral margin of rostrum forming right angle with anterior margin of valve ventral to rostrum 2
- Ventral margin of rostrum forming acute angle with anterior margin of valve ventral to rostrum 3
- 2. Surface of valves with numerous minute knob-like processes; dorsal margin of second joint of first antenna with one bristle ... *D. magnifica*
- Surface of valves without knob-like processes; dorsal margin of second joint of first antenna without bristle *D. ferox*, new species
- 3. Longest ventral claw of first endopodial joint of mandible with three

- stout teeth, without slender teeth and spines *D. benthedi*
- Longest ventral claw of first endopodial joint of mandible with slender teeth and spines and without three stout teeth 4
- 4. Second endopodial joint of mandible with five claws *D. piercei*
- Second endopodial joint of mandible with two claws *D. fossula*

Dantya ferox, new species
Figs. 2–6

Etymology. — From the Latin *ferox* (wild, spirited, fierce) in reference to the name Savage Island by which the island of Niue is also known.

Holotype. — USNM 193645, adult female on slide and in alcohol, unique specimen.

Type locality. — PWD (Public Works Department) Cave (Stn. 88-012), Alofi, leg. T. M. Iliffe, 23 Feb 1988; unique specimen collected in a plankton net from gravel bottom of cave in 2 m depth and 5 m inside the cave from the sea.

Description of cave. — PWD Cave is a sea cave located on the west coast of Niue and behind the Public Works Department depot at Alofi. It is reached by a tourist footpath south of the depot which leads to the coast. The cave is at the back of a small sheltered bay. It consists of a sea water filled fissure approximately 10 m in length with a small dry section at the inner end. Water depth in the cave is 2 m with a gravel bottom. The water temperature was 29°C on 23 Feb 1988. The walls of the cave were relatively barren despite the direct connection with the sea, and had only a few small sponges and other encrusting organisms. A sea snake was observed in the rear of the cave. Amphipods, tanaidaceans and isopods were also collected.

Description of adult female (Figs. 2–6). — Carapace elongate with prominent rostrum with pointed tip, and elongate caudal process with truncate tip (Figs. 2, 3a).

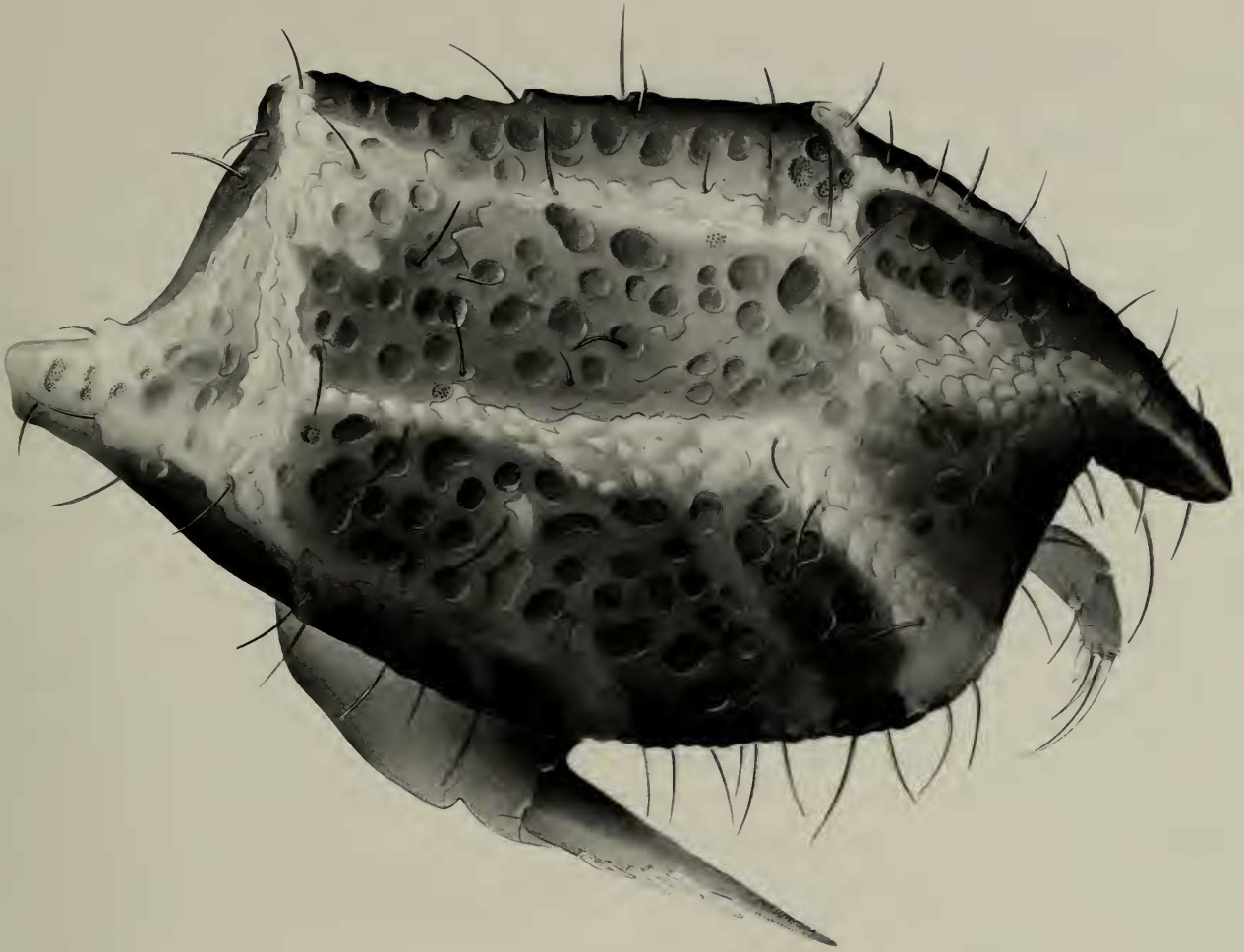


Fig. 2. *Dantya ferox*, holotype, adult female, USNM 193645: Lateral view of complete specimen from right side, length 0.99 mm. All over tone for shape, contour and lighting done with airbrush.

Ornamentation: Surface with numerous oval fossae with crenulate or papillate edges and papillate bottoms, and two low horizontal ribs formed of platelets having crenulate posterior edges (Figs. 2, 3b); platelets closer together at anterior and posterior ends of ribs than at midlength (Fig. 2); surface of platelets with minute pores or papillae (difficult to resolve) (Fig. 3b). Upper rib with anterior end at tip of rostrum and posterior end at posterodorsal corner of valve; lower rib passing over lower half of central adductor muscle attachments, with anterior end at anteroventral corner of valve and posterior end at vertical ridge anterior to caudal process; upper and lower ribs weakly connected by low vertical rib at about one-fourth length of valve from anterior end (Fig. 2); vertical rib extends dorsally and branches near dorsal edge of valve.

Carapace bristles: Outer surface with widely scattered medium and long bare bristles, some with broad base, most with bases in shallow round fossae (Fig. 2). Inner side of rostrum with two bristles forming row near ventral margin (Fig. 3c); inner side of anteroventral margin with about 12 bristles forming row close to valve edge and five bristles forming distal row closer to edge (Fig. 3d); inner side of ventral margin with eight bristles forming row.

Infold: Anterior edge of infold at posterior end of rostrum with three spinous bristles forming verticle row, and one shorter bare bristle near inner corner of incisur (Fig. 3c). Broad anteroventral infold with three parallel ridges, one small bare bristle at mid-width ventral to rostrum, and three similar bristles near outer edge at anteroventral curvature of valve (Fig. 3d). Infold of caudal

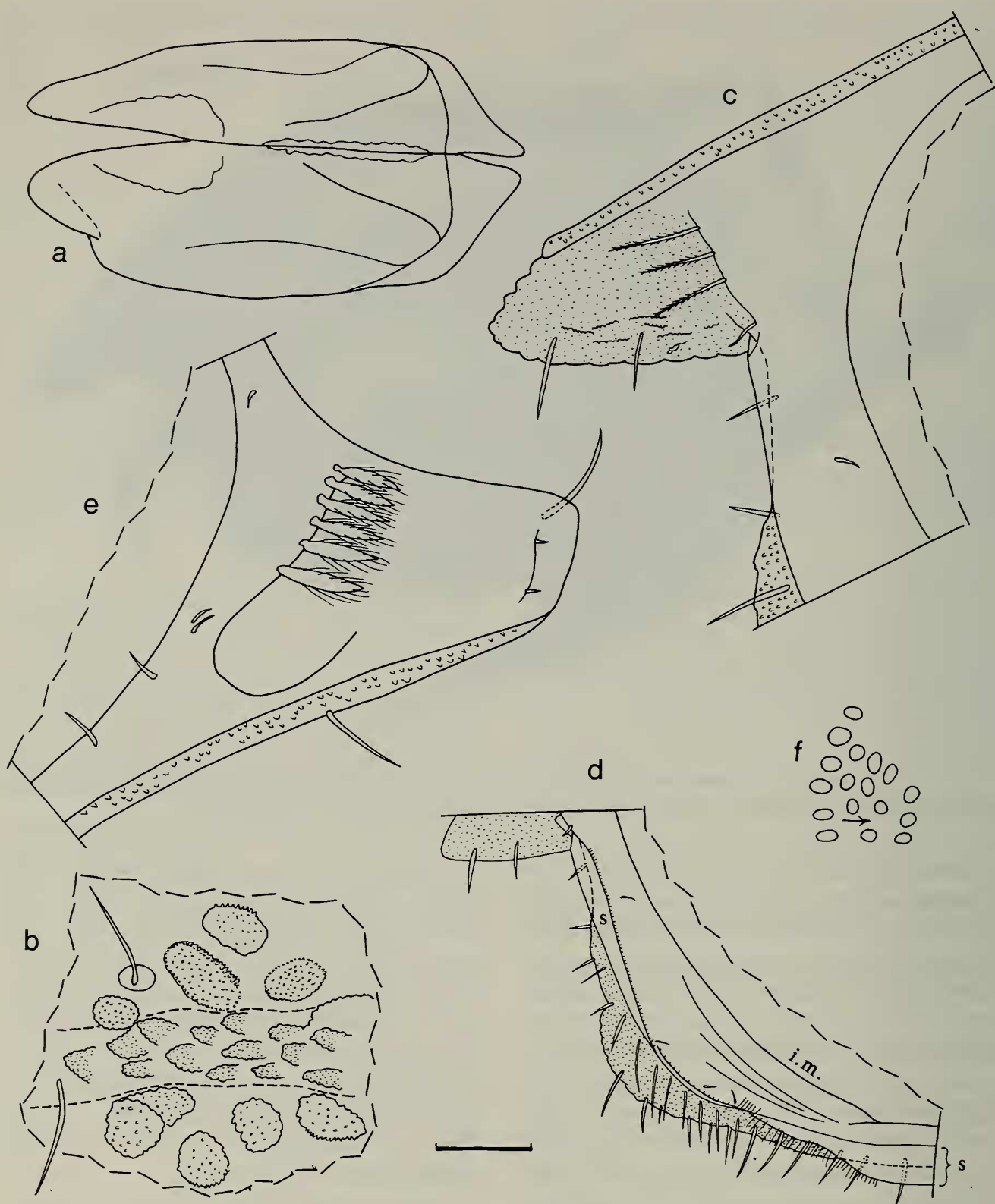


Fig. 3. *Dantya ferox*, holotype, adult female, USNM 193645: a, Dorsal view of complete specimen, anterior to left, length 0.99 mm (specimen slightly oblique and with valves open slightly); b, Detail of surface of right valve at midlength of lower rib; c, Inside view of anterior of right valve; d, Inside view of anteroventral margin of right valve; e, Inside view of caudal process of right valve; f, Outside view of central adductor muscle attachments of right valve, anterior to right. Abbreviations: i.m., inner margin of infold; s, selvage. Scale bar represents 0.1 mm for d, and f, and 0.05 mm for b, c, e.

process with four bristles along inner margin, and "pocket" with six or seven flat frond-like bristles forming row along anterior edge of pocket, and two small indistinct spines forming row near posterior edge of caudal process (Fig. 3e).

Selvage (Fig. 3d): Lamellar prolongation of selvage with anterior end near ventral spinous bristle of rostral infold and posterior end at ventral end of caudal process; prolongation between inner end of incisur and anteroventral corner of valve with short marginal spines; short section of prolongation posterior to anteroventral corner with long streamers along margin; posterior to that section prolongation broader, either bare or with minute marginal spines; prolongation narrow and bare along ventral margin of caudal process and absent along posterior edge (not shown); dorsal edge of rostrum and caudal process with narrow prolongation (not shown).

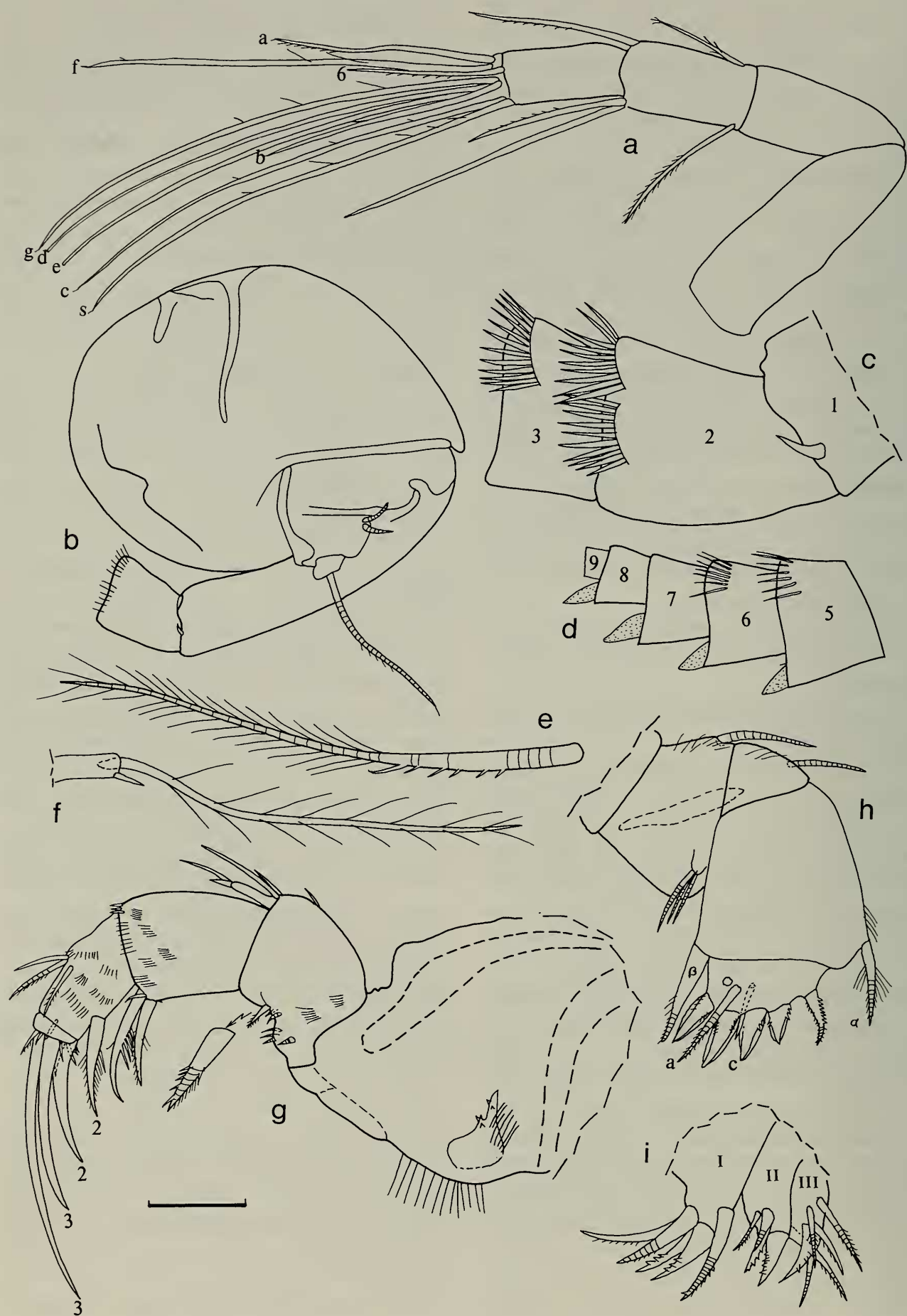
Central adductor muscle attachments (Fig. 3f): Consisting of about 17 discrete oval attachments.

Carapace size: Holotype: length 0.99 mm, height 0.58 mm.

First antenna (Fig. 4a): First joint bare. Second joint with minute medial spines forming row in distal dorsal corner. Third and fourth joints and also fifth and sixth joints fused but each joint identified by distribution of bristles. Third joint with two bristles: dorsal bristle with long proximal hairs and few minute spines at tip; ventral bristle longer and with short marginal spines. Fourth joint with three bristles: single dorsal bristle with few indistinct short spines; shorter of two ventral bristles medial and with indistinct short spines; longer of ventral bristles lateral, bare. Ventral bristle of long fifth joint with five small filaments and minute process at tip. Sixth joint with spinous medial bristle longer than fused fifth and sixth joints. Seventh joint: a-bristle longer and stouter than bristle of sixth joint, with few indistinct short spines; b-bristle

slightly longer than a-bristle, with short distal filament and minute process at tip; c-bristle about same length as bristle of fifth joint, with three small marginal filaments and minute process at tip. Eighth joint: d- and e-bristles same length as c-bristle, bare with blunt tips; f-bristle shorter than c-bristle, with two short proximal filaments, one minute subterminal filament or spine, and minute process at tip; g-bristle same length as c-bristle, with two short proximal filaments, one minute filament or spine near midlength, and minute process at tip. All bristles ringed (rings not shown).

Second antenna: Protopodite bare (Fig. 4b). Endopodite two-jointed (Fig. 4b): first joint with two small ringed proximal anterior bristles; second joint small, with long ringed bristle with short marginal spines. Exopodite (left limb): first joint with small recurved medial bristle near midwidth of distal margin (Fig. 4c); bristles of joints 2–8 long, with six proximal ventral spines (distal spine longest) followed by natatory hairs (Fig. 4e); bristles of joints 4–7 with dorsal hairs proximal to spines; ninth joint small, with two bristles (ventral bristle shorter and slenderer than bristle of eighth joint, with three small proximal ventral spines followed by one longer dorsal spine, then natatory hairs; dorsal bristle of ninth joint short with few small hair-like marginal spines). Joint 2 with spines forming two distal rows (Fig. 4c); joints 3–6 with spines forming one distal row (Fig. 4c, d); spines mostly on medial side but rows curving around dorsal edge of joint resulting in few spines being on lateral side near dorsal margin. Joints 4–8 with basal spines increasing in size on distal joints (spine on eighth joint about twice length of small ninth joint (Fig. 4d). Exopodite of right limb aberrant, with only seven joints: small medial terminal bristle of first joint straight, not bent as on left limb; bristles of joints 2–5 similar to those of left limb; bristle of sixth joint with only three ventral spines and distal part invaginated



into base (Fig. 4f); terminal seventh joint larger than terminal ninth joint of left limb, with two bristles (longest bristle ventral, with three ventral spines and without natatory hairs; dorsal bristle minute, about half length of seventh joint); joints 2–6 with long medial spines forming one to three rows arranged differently than on left limb; joints 2–6 with basal spines. (Exopodial bristles not shown in Fig. 4c, d.)

Mandible (Fig. 4g): Coxale endite with stout terminal spine with two or three smaller marginal spinules, a subterminal spine with two smaller marginal spines, and long slender spines forming two proximal rows; ventral edge of coxale with slender spines forming two or three rows. Basale: medial side near ventral margin with three small ringed bristles (distal stouter and with marginal spines); medial side near proximal margin with two rows of spines; lateral side near ventral margin with row of three minute bare ringed bristles; dorsal margin with short ringed bristle distal to midlength and two terminal ringed bristles (longest reaching midlength of first endopodial joint) (rings on bristles not shown). Exopodite cylindrical, about one-third length of dorsal margin of first endopodial joint; tip with short diaphanous triangular flap and ringed bristle (rings not shown). First endopodial joint: medial side with rows of distal spines; dorsal margin with row of terminal spines (spines stouter than those of medial side); ventral margin with small medial ringed terminal bristle (rings not shown) and two terminal claws (proximal medial claw with

slender marginal spines, other stouter and with four or five stout ventral spines at midlength (spines increasing in length and stoutness distally along claw). Second endopodial joint: dorsal margin with three bristles (one bare, two with spines); ventral margin with stout claw (with ventral and dorsal spines) distal to midlength, and stouter terminal claw with few proximal ventral spines; medial surface with slender spines forming rows; lateral surface with small indistinct terminal bristle near midwidth. Third endopodial joint with one short spinous dorsal claw, one small unringed spine-like bristle adjacent to dorsal claw (indistinct and observed only on right limb), two small ringed lateral bristles near ventral margin, two stout bare unequal terminal claws, and one small medial spine just ventral to shortest stout terminal claw (spine could be on claw).

Maxilla (Fig. 4h, i): Coxale with stout dorsal bristle. Endites I, II, and III each with five bristles (Fig. 4i). (Note: in Fig. 4i anterior bristle of endite II is behind endite III making it appear to be on that endite.) Basale with spinous dorsal bristle and distal medial bristle (not shown in Fig. 4h). Exopodite with three terminal ringed spinous bristles (one longer than others). First endopodial joint: alpha-bristle with distal rings, long proximal hairs and short distal spines; beta-bristle stouter than alpha-bristle, ringed only near tip, with short distal hairs; anterior margin and medial surface near anterior margin with long spines (not all shown). Second endopodial joint with

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Fig. 4. *Dantya ferox*, holotype, adult female, USNM 193645: a, Medial view of right first antenna. b–e, Medial views of left second antenna: b, Protopodite, endopodite, and exopodial joints 1 and 2; c, Joints 1–3 of exopodite; d, Joints 5–9 of exopodite; e, Bristle of second exopodial joint; f, Tip of invaginated bristle of sixth joint of exopodite of aberrant right second antenna; g, Medial view of right mandible; h, Lateral view of right maxilla (endites not shown); i, Medial view of endites of right maxilla. Abbreviations: a–g, letters assigned to bristles; s, sensory bristle of fifth joint of first antenna; Arabic numbers, numbers assigned to individual joints; Roman numerals, numbers assigned to endites. Scale bar represents 0.05 mm for a, b, e, g–i, and 0.02 mm for c, d, f.



Fig. 5. *Dantya ferox*, holotype, adult female, USNM 193645: a, Anterior view of right fifth limb; b, Posterior bristles of right fifth limb as seen through limb; c, Posterior view of right fifth limb as seen attached to body (only 1 epipodial bristle shown); d, Posterior bristles of exopodial joints 2-5 of left fifth limb as seen through

two spinous lateral a-bristles (one missing on illustrated right limb), one smaller and more slender ringed spinous medial c-bristle, and five terminal bristles: anterior bristle ringed distally and with slender teeth along margins (teeth longer and stouter along unringed part); other bristles stouter, unringed, with teeth along margins proximal to midlength, and with narrow transparent velum along each edge (Fig. 4h). (Note: a dorsal bristle was observed on a coxale when the maxilla was attached to the body, but was absent on each mounted limb; I assume that the bristle was broken off during dissection; a visible empty socket on the right limb supports the assumption.)

Fifth limb (Fig. 5a–d): Epipodite with about 40 bristles (Fig. 5c). Endite I with two bristles; endite II with three bristles; endite III with six bristles (Fig. 5a). Exopodite: first joint: anterior side with two short pectinate bristles at midwidth and one closer to inner edge (Fig. 5a). Second joint: large square tooth with proximal round tooth on inner edge (Fig. 5a); posterior side with three bristles forming row (middle bristle stout pectinate) (Fig. 5b, d) (teeth not shown on middle bristle in Fig. 5d). Third joint with two short bristles on outer lobe and one long bristle on inner lobe (Fig. 5b, d) (bristle of inner lobe could be on first or second joints; bristle observed only on left limb). Fourth and fifth joints fused, with total of five bristles (Fig. 5b, d).

Sixth limb (Fig. 5e–g): Limb partly fragmented during dissection, with four endites. Endite I with three short bristles; endite II with two bristles (one missing in Fig. 5e); endites III and IV each with four bristles. End joint with eight or nine bristles (posterior two bristles hirsute, others mostly with short stout spines, but some with proximal hairs and slender distal spines). A single bare

bristle on posterior margin interpreted herein to be epipodial bristle. Limb hirsute medially.

Seventh limb (Fig. 6a–c): Each limb with four proximal bristles (two on each side), each with two to four bells, and six terminal bristles (three on each side), each with three to seven bells; all bristles without marginal spines. Terminus with comb of about five teeth opposite two small pegs (one straight, one slightly longer and curved) (Fig. 6c).

Furca: Each lamella with six claws (Fig. 6d, e); 1, 2, and 4 primary claws; claws 3, 5 and 6 secondary claws; claw 4 stouter than claw 3; claw 1 nonarticulated on both lamellae; claw 2 of left lamella articulated (Fig. 6d), of right lamella nonarticulated (probably aberrant because claw 2 of all known species of genus are articulated) (Fig. 6e); remaining claws articulated; claw 1 with teeth forming two rows along proximal two-thirds, some teeth slightly longer than others; claw 2 with few proximal teeth; claw 3 with slender teeth along most of posterior margin; no teeth observed on claw 4; few indistinct teeth on claws 5 and 6; anterior edge and medial surface of right lamella with long hairs; anterior edge of left lamella with few proximal spines; claw 1 of right lamella slightly anterior to claw 1 of left lamella (Fig. 6d).

Bellonci organ (Fig. 6f, g): Elongate, bare, with five proximal segments, broadening distally and with unevenly rounded tip.

Eyes: Lateral eyes with five amber-colored ommatidia (Fig. 6f). Medial eye larger than lateral eye, bare, with scattered brown pigment (Fig. 6f, g).

Upper lip (Fig. 6i): Rounded with minute spines.

Genitalia (Fig. 6h, j): Oval sclerotized ring on each side of body anterior to furca.

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limb; e, Medial view of right sixth limb; f, Lateral view of left sixth limb without endites I and II; g, Medial view of endites II and III of left sixth limb. Abbreviations: Arabic numbers, numbers assigned to joints; Roman numerals, numbers assigned to endites. Scale bar represents 0.05 mm for c, and 0.02 mm for a, b, d–g.

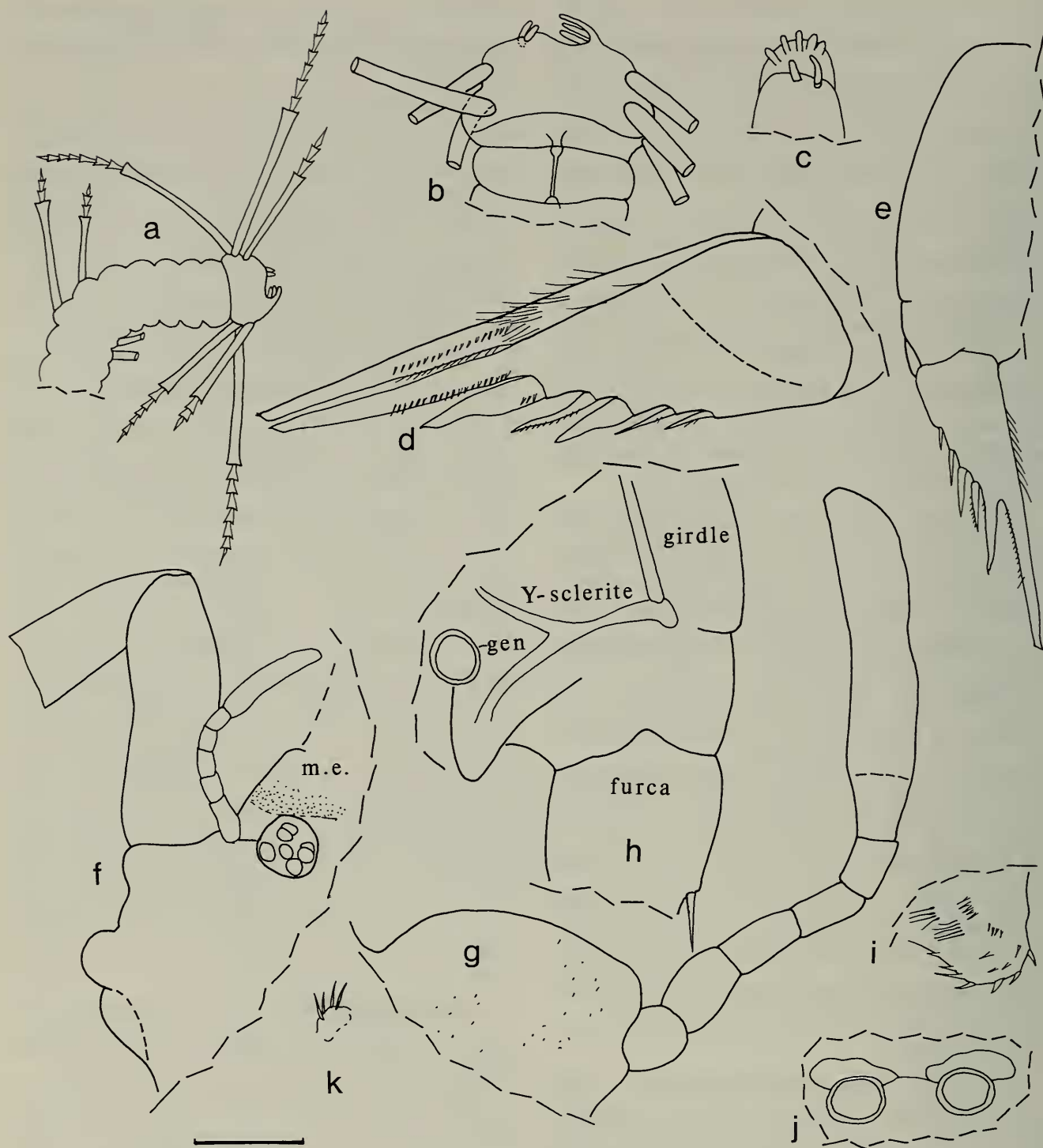


Fig. 6. *Dantya ferox*, holotype, adult female, USNM 193645: a, Seventh limb; b, Detail from a; c, Tip of seventh limb viewed from peg side (this limb not limb shown in a); d, Medial view of claw 1 of right lamella of furca and lateral view of left lamella; e, Posterior of body with right lamella of furca; f, Anterior of body showing medial eye, Bellonci organ, left lateral eye, and joints 1 and 2 of right first antenna; g, Medial eye and Bellonci organ; h, Posterior of body showing girdle, Y-sclerite, left genital organ, and proximal part of left lamella of furca; i, Upper lip, anterior to right; j, Ventral view of both genitalia; k, Brush organ of right side. Abbreviations: gen, genital organ; m.e., medial eye. Scale bar represents 0.1 mm for e, 0.05 mm for a, c, d, f, h-k, and 0.02 mm for b, g.

Brush-like organ (Fig. 6k): Four or five minute bristles anterior to Y-sclerite.

Posterior of body (Fig. 6e): Evenly rounded, bare.

Y-sclerite (Fig. 6h): Branching distally.

Comparisons. — *D. ferox* differs from previously described species of *Dantya* in lacking a dorsal bristle on the second joint of the first antenna. In lateral view the carapace of *D. ferox* resembles that of *D. magnifica*, but lacks the knob-like processes present on the surface of that species. Also, the exopodite of the mandible of *D. ferox* is about one-third the length of the dorsal margin of the first endopodial joint, and is minute on *D. magnifica*.

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(LSK) Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560; (TMI) Bermuda Biological Station for Research, Ferry Reach GE 01, Bermuda.